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Coolant - Cascade

UNION CARBIDE

INTERNAL CORRESPONDENCE

NUCLEAR DIVISION

POST OFFICE BOX P, OAK RIDGE, TENNESSEE 37830

To (Name) R. G. Jordan
Division
Location 9704-2, MS-021, Y-12

Date September 16, 1977
Originating Dept.
Answering letter date

Copy to J. M. Case (Y-12), C. C. Hopkins (PAD), J. F. Hudson, J. F. Jamison, A. J. Legeay - RC, T. H. Monk, C. J. Parks, H. Postma (ORNL), K. W. Sommerfeld, S. S. Stief, P. R. Vanstrum (Y-12)

Subject Freon Consumption Data (Emissions from Cascade Operations)

11/100

Attached in Table I is the cascade Freon-114 emission summary as requested in your letter of August 2, 1977, subject as above. It should be emphasized at the outset that these data are engineering estimates since no instrumentation exists to actually measure these emissions.

The first five items in Table I are estimates of emissions from cascade equipment sources. The second five items are estimated emissions resulting from certain cascade operating procedures.

It is our opinion that with the transmission of these data to ERDA, they should also be made aware of the need for adequate funding and lead-time necessary to implement any proposed emission control measures that may be required by EPA.

ORIGINAL SIGNED BY R. A. WINKEL

R. A. Winkel

RAW:jb

Enclosure

APPROVAL FOR RELEASE

Document: # Unnumbered ; Date 9/16/77 ;
Title/Subject Ltr., RA Winkel to RG Jordan, "Freon Consumption Data (Emissions from Cascade Operations) -- 2 pp

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K-25 Classification & Information Control Officer — Date 1/15/93

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TABLE I

FREON-114 EMISSIONS BY SOURCE AND QUANTITY AT ORGDP

No.	Source of Loss	Number of Sources	Remarks	Freon-114 Emissions 1000 lbs./year
1.	Site Glasses	260	Leaks at gasket surfaces	113.2
2.	Condensers	250	Thru tube and tube-to-tube-sheet leaks into water and out at cooling towers	73.0
3.	Gas Coolers	1710	Goes to PG system thru tube, tube-to-tubesheet, and transition joint leaks	11.0
4.	Coolant Piping	200 Ft. weld/cell	Occurs at welds and flanges	11.0
5.	Valves and Fittings	2500	At valve flanges and instrument connections	6.6
6.	Purging	30/Year	Purging residual R-114 after evacuation	4.7
7.	Coolant Transfer	50/Year	Venting drums and losses at vapor pump seals	2.9
8.	Condenser Venting	5/Year	To remove noncondensables	1.8
9.	Pressure Relief System	1/10 Years	Overpressure of system resulting in R-114 release to reduce pressure	1.1
10.	Miscellaneous	30/Year	Sampling	0.7
			Total	226.0

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Title: "Freon Emissions from K-25"
Authors: R. A. Winkel, J. F. Wing
Abstract: Two documents which provide information on losses to the atmosphere in 1977. The information appears to be based on engineering calculations and not on measured use.
Reviewer: J. Lamb
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